

# Technical Bulletin

## Wells Regulation – Well Repairs and Other Alterations

This technical bulletin is one in a series of 11 on well issues created for a person who currently owns a water supply well. The purpose of this technical bulletin is to summarize the information on well repairs and alterations found in the *Water Supply Wells – Requirements and Best Management Practices* manual published by the Ministry of the Environment, December 2009.

This technical bulletin describes requirements for well owners and persons who work at the construction (or alteration) of existing wells. For additional information see the *Wells Regulation – Installing Equipment in a Well* technical bulletin.

Under Regulation 903 (Wells Regulation), as amended, made under the Ontario Water Resources Act, a well owner is obligated to maintain his/her well(s) to prevent the entry of surface water and other foreign materials from contaminating the well water and the shared groundwater resource. This may require repairs or other alterations to be done to a well.

## Requirements for Repairs and Alterations on Existing Wells

Although repairs and alterations to existing or older wells generally do not have to meet the construction requirements for new wells in terms of location, depth, casing, annular space and well development, it is always recommended that such repairs follow all new construction requirements where possible.

Some examples of when **new well construction requirements (e.g. casing) do not apply** include:

- Conducting a minor alteration on an existing well,
- Replacing a pump or associated pumping equipment such as a pitless adapter or pitless unit into an existing well,
- Extending a well casing above the ground surface,
- Installing a new length of casing commonly called a casing sleeve or liner inside the well, or
- Removing a section of well casing from the top of the well while maintaining the required minimum casing height.

A “minor alteration” with respect to a well means,

- (a) routine repair or maintenance,
- (b) the installation of monitoring, sampling or testing equipment, other than equipment used to test the yield of the well or the aquifer,
- (c) the installation of a pump in a test hole, or
- (d) the installation of a well cap or watertight well cover.

Depending on the type of alteration, some Wells Regulation requirements apply such as: performing a yield test on the well, disinfecting the well, covering and venting the well properly, installing clean equipment, tagging a well and/or completing a well record in accordance with the Wells Regulation. For more information see Chapter 11: *Maintenance & Repair of the Water Supply Wells – Requirements and Best Management Practices* manual and the Wells Regulation.

If an existing well is being deepened, the casing requirements for new wells will also apply. See the *Wells Regulation – New Construction of the Hole, Casing, Well Screen and Annular Space* technical bulletin for a summary of the casing requirements.

## **Extension of Well Casing for a Well in a Well Pit**

If an alteration involves the extension of a well casing above the ground surface for a well in a well pit, the well owner will need to decide if the well pit is to be maintained or abandoned.

If the well pit is to be maintained, then the person constructing (altering) the well must ensure surface drainage is such that water will not collect or pond in the vicinity of the well, especially in the well pit.

If the well pit cannot be maintained such that surface water and other foreign materials are prevented from entering the well, then the well pit must be abandoned.

If the well is altered to extend the casing above the ground surface and a well pit is present, a well owner should consider having the well pit properly abandoned. Properly abandoning the well pit will reduce well maintenance issues and reduce the risk of surface water and foreign materials entering the well.

If the well pit is to be abandoned, the person abandoning the well pit (often the well owner) must ensure the well pit is abandoned, as if it were a well with necessary modifications. For further information see the *Wells Regulation – Well Abandonment: How to Plug and Seal a Well* technical bulletin.

## Installing Used Equipment during Well Repair

All new or used equipment installed in, or connected to, a well must be clean and must not impair the quality of the well water or aquifer. Well owners must maintain installed equipment to ensure it does not impair the quality of the well water.

In addition to the requirement that equipment be clean, persons working on existing wells and well owners should consider:

- Installing new parts, devices and materials in drinking water wells that are certified to meet the National Sanitation Foundation (NSF) International Standard 61 “Drinking Water System Components - Health Effects”. Certification of the components can be verified by searching NSF/ANSI Standard 61<sup>1</sup> Approved Drinking Water System Components database: <http://www.nsf.org/Certified/PwsComponents/> and by looking for the NFS logo on the equipment.
- Installing parts, devices and materials that are suitable for the particular type of environment (e.g. corrosive conditions) and type of well.
- Cleaning the equipment prior to installation as suggested in Chapter 8: *Well Disinfection of the Water Supply Wells – Requirements and Best Management Practices* manual.
- Ensuring parts are installed to the manufacturers' specifications.

## Minimum Casing Height for Existing Wells (Not Well Pits)

Be aware that for any routine well maintenance, repair or alteration, or when doing any other work around a water supply well such as landscaping:

- Where a casing height extends at least 40 cm (16”) above the ground surface, the top of the casing must not be reduced to a height of less than 40 cm (16”) above the ground surface.
- Where the casing height extends less than 40 cm (16”) above the ground surface, the distance between the top of the casing to the original ground surface must not be reduced.

Casing height reduction can occur either by reducing the height of the casing or by increasing the height of the ground surface.

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<sup>1</sup> NSF International Standard/American National Standard 61, 2008. “*Water Treatment and Distribution Systems - Health Effects, 27th Edition.*” NSF International, Ann Arbor, MI 2008. [www.nsf.org](http://www.nsf.org)

These casing height requirements above do not apply to some water supply wells (e.g. wells constructed by the use of a driven point, jetted point wells, wells in well pits). See Chapter 9: *Equipment Installation of the Water Supply Wells – Requirements and Best Management Practices* manual

To minimize the risk of surface water and other foreign materials entering the top of a well, it is recommended that the height of a casing extension above the ground surface meet or exceed the casing requirements for new wells and extend above the known height of any anticipated flood level. Also, the final grade of the ground surface around the well must be sloped to direct surface water runoff away from the well also referred to as mounding.

## **Well Tags**

Well identification numbers link wells in the field with well records submitted to the well owner and the Ministry of the Environment. Since October 2003, the Ministry of the Environment has issued stainless steel well tags the size of a credit card to be affixed to wells constructed in Ontario. Each tag has a unique number.

If a well has a well tag, no one is allowed to remove it from the well unless the Wells Director under the Act at the Ministry of the Environment has given consent or the removal is permitted or required under the Wells Regulation. For example a person can remove a well tag during a well alteration or well abandonment.

No person shall deface, alter, conceal or obstruct an affixed well tag.

A well tag must be safeguarded during well alterations. If a well tag is removed during an alteration, it must be properly re-affixed before the alteration is completed.

If the work or repair is an alteration to a well, other than a minor alteration, and a well tag is not present, the person constructing the well must obtain and affix a Ministry issued well tag in accordance with the Wells Regulation.

If a damaged well tag is identified during an alteration to a well, including a minor alteration, it must be returned to the Ministry of the Environment within the required timeframe and a new well tag must be affixed. See Chapter 13: *Documentation, Reporting & Tagging of the Water Supply Wells – Requirements and Best Management Practices* manual for further information.

## Well Construction Licences

A well technician that is retained to work on an existing well must hold the correct class of licence and either hold a valid well contractor licence or work for a licensed well contractor unless exempt under the Ontario Water Resources Act or the Wells Regulation. It is especially important to retain properly qualified persons where electrical or plumbing work is necessary. Where water treatment is deemed necessary or is advised, it is recommended that a water treatment specialist install any water treatment devices on the building's plumbing.

For further information on well construction licensing, including an explanation of licence classes, see Chapter 3: *Well Construction Licensing – Obtaining, Maintaining & Exemptions* of the *Water Supply Wells – Requirements and Best Management Practices* manual or the *Wells Regulation – Well Construction Licensing* technical bulletin.

## Additional Information Sources

This technical bulletin on well issues is one in a series of 11 created for owners of water supply wells which are available on the ministry's website:

[http://www.ene.gov.on.ca/environment/en/subject/wells/STDPROD\\_075978.html](http://www.ene.gov.on.ca/environment/en/subject/wells/STDPROD_075978.html)

Further information on well maintenance for water supply wells can be found in Chapter 11: *Maintenance & Repair* of the *Water Supply Wells – Requirements and Best Management Practices* manual.

A copy of the *Water Supply Wells – Requirements and Best Management Practices* manual can be obtained from the ministry's web site at

[http://www.ene.gov.on.ca/environment/en/resources/STD01\\_078655.html](http://www.ene.gov.on.ca/environment/en/resources/STD01_078655.html)

For all of the requirements on non water supply wells (e.g. test holes or dewatering wells) see the Wells Regulation.

A copy of Regulation 903 (Wells Regulation), as amended, made under the Ontario Water Resources Act and other regulations can be obtained from the e-Laws web site at [www.e-laws.gov.on.ca](http://www.e-laws.gov.on.ca).

The publications are also available by calling the Publications Information Centre at 1-800-565-4923 or (416) 325-4000.

For further information about wells, contact the Wells Help Desk at 1-888-396-9355 (Well) or the nearest Ministry of the Environment office listed in the blue pages of the telephone directory.

***Notice: This bulletin is being provided for information purposes only and is not intended, nor should it be construed as providing legal advice in any circumstances. The applicable legislation including the Ontario Water Resources Act and Regulation 903, as amended and made under that Act, should be consulted. Legislation and regulations change from time to time so it is essential that the most current versions be used.***

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